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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,363	07/11/2003	Zhangyi Wu	45047	1506
7590	05/20/2009		EXAMINER	
Christian C. Michel			VIANA DI PRISCO, GERMAN	
Roylance, Abrams, Berdo & Goodman, L.L.P.			ART UNIT	PAPER NUMBER
Suite 600			2617	
1300 19th Street, N.W.				
Washington, DC 20036				
			MAIL DATE	DELIVERY MODE
			05/20/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/617,363	<b>Applicant(s)</b> WU ET AL.
	<b>Examiner</b> GERMAN VIANA DI PRISCO	<b>Art Unit</b> 2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 02 March 2009.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1-6, 8-13, 16-28, 30-37, and 42 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-6,8-13,16-28,30-37 and 42 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)

Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)

Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Objections***

1. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 limits the number of parallel data streams to four, whereas claim 3 recites the number of parallel data streams is fewer than twenty two.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-6, 8-13, 16-28, and 30-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claims 1, 6, 8-12, 16-25, 28, 31 and 32 the use of the language "adapted to" does not limit the scope of the claims. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation.

Claims 1, 25, 27, 30 and 34 are rejected to because the use of the language "approximately" does not define the scope of the claims.

Additionally, claims 1, 6, 8, 25 and 28 the first two limitations basically describe a high speed data interface that receives and inverse multiplexes a DS3 data stream into

four parallel data streams, and a framer that receives each of said parallel data streams. This could be interpreted as the DS3 data stream being inverse multiplexed into four parallel data streams that then go to the framer. However according to the specification and accompanying drawings, specifically in Fig. 1 the DS3 data stream is first received by the DS3 line interface unit 102, then it goes to framer 114a, and then is inverse multiplexed into four parallel data streams by inverse multiplexer 104. A similar argument applies to claims 25 and 28 involving the deframer.

Therefore what is being claimed does not correspond to what it is described in the specification. In rejecting of claims 1, 6, 8, 25 and 28 the Examiner has interpreted the claims in light of the specification.

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, 5, 11, 25, 27, 34, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg", United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2) .

Consider claims 1 and 34, Peleg discloses a system for transmitting a DS3 data stream over a few twisted pair conductors comprising:

a high speed data interface ( data transmission terminal 17) adapted to receive said DS3 data stream (the broadband stream 9 is a PDH-data stream, hence is

adapted to receive a DS3 data stream) and inversely multiplex said high speed data stream into four parallel data streams (as carried by data transmission lines 3,4,5,6) that each comprise an approximately 11 megabits per second stream (Mbps) (a DS3 divided by four is approximately 11 megabits per second), a framer (chopper device 8), and a plurality of modems that modulate each corresponding stream of packets onto a twisted pair conductor (modems 3a, 4a, 5a, and 6a which can be based on VDSL technology, it is well known that VDSL can transmit at 13 Mbps) (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

However Peleg does not expressly that each packet generated by the framer has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

I the same field of endeavor Evans discloses that each packet generated by the framer has a packet index number (frame sequence number) and a packet stream number (2-bit line identifier) corresponding to its respective said parallel data stream (see Col. 5, l. 27-67).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet index number and a packet stream number as disclosed by Evans in the system of Peleg in order to identify an error condition and the sequence of a data stream that is taken from a high bandwidth line and split among low bandwidth links.

Consider claim 3 and as applied to claim 1 above, Peleg further discloses the

number of parallel data streams being fewer than twenty two (paragraph [0050]).

Consider claim 11, and as applied to claim1 above Peleg further discloses a system for transmitting high speed data over a plurality of relatively low bandwidth unshielded twisted copper pairs comprising a plurality of DSL modems which implies the use of a low frequency band in the upstream direction and a high frequency band for the downstream direction (paragraph [0054]).

Consider claims 25, Peleg discloses a plurality of modems that demodulate each a plurality of parallel signals received over said plurality of twisted pair conductors that each can comprise an approximately 13 megabits per second (Mbps) stream into a few data streams comprising a stream of packets (modems 3b, 4b, 5b, and 6b which can be based on VDSL technology, it is well known that VDSL can transmit at 13 Mbps), a deframer (reconstructor 11), a high speed data interface (demultiplexing device 2) adapted to receive said plurality of synchronized parallel data streams and to multiplex said plurality of synchronized parallel data streams into said DS3 (the broadband stream is a PDH-data stream, hence is adapted to receive a DS3 data stream) data stream (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

However Peleg does not expressly that each packet has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

I the same field of endeavor Evans discloses that each has a packet index number (frame sequence number) and a packet stream number (2-bit line identifier)

corresponding to its respective said parallel data stream (see Col. 5, l. 27-67).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet index number and a packet stream number as disclosed by Evans in the system of Peleg in order to identify an error condition and the sequence of a data stream that is taken from a high bandwidth line and split among low bandwidth links.

Consider claim 27 and as applied to claim 25 above, Peleg further discloses inverse multiplexing a broadband data stream (that is preferably a PDH-data stream, hence a DS3 data stream) into four synchronized parallel data streams with a data rate of approximately 11 Mbps. (a DS3 divided by four is approximately 11 megabits per second) (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

Consider claim 42, and as applied to claim 34 above Peleg further discloses that modems 3a, 4a, 5a, 6a and 3b, 4b, 5b, 6 can be based on any DSL technology which inherently teaches the use of a low frequency band in the upstream direction and a high frequency band for the downstream direction (paragraphs [0038] and [0054]).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg" United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and further in view Knapp et al. ("Knapp", United States Patent Application Publication No.: US 2008/0095191A1).

Consider claim 2 and as applied to claim 1 above, Peleg does not explicitly disclose the size of the packets but Evans teaches that each frame has a framing byte (byte 1:frame alignment word), a byte comprising the packet index number and the packet stream number (byte 426: line identification and byte 427: frame sequence number). The frame taught by Evans has 428 and not 64 bytes as claimed.

In the same field of endeavor Knapp teaches a frame of 64bytes (paragraph [0039])

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a 64-byte packet as taught by Knapp in the system of Peleg as modified by Evans in order to efficiently transfer different data types synchronously across the network.

Claims 4, 26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg", United Sales Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and further in view of Barlev et al. ("Barlev", United Sales Patent Application Publication No.: US 2005/0220180 A1).

Consider claims 4, 26 and 35, and as applied to claims 1, 25 and 34 respectively above, Peleg as modified by Evans does not expressly disclose the claimed limitation.

In the same field of endeavor Barlev as further discloses directing the bits of the DS3 data stream to the parallel data streams in accordance with a round robin pattern

(paragraph [0113]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to direct the bits of the DS3 stream as disclosed by Barlev in the system of Peleg as modified by Evans in order to take advantage of existing copper pairs.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg", United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and of Knapp et al. ("Knapp", United States Patent Application Publication No.: US 2008/0095191A1), and further in view of Barlev et al. ("Barlev", United States Patent Application Publication No.: US 2005/0220180 A1).

Consider claim 5 and as applied to claim 2 above Peleg as modified by Evans and further modified by Knapp does not disclose the second byte comprising stuffing bits to allow the inverse multiplex operation of said high speed data interface to vary the number of bytes in a packet.

In the same field of endeavor Barlev discloses using stuffing bits (paragraph [0275]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use stuffing bits as disclosed by Barlev in the system of Peleg as modified by Evans and Knapp in order to provide easier buffering schemes.

5. Claims 6, 28 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al. ("Peleg", United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and further in view of Applicant's own admission of prior art.

Consider claims 6 and 37, Peleg discloses a system for transmitting a DS3 data stream over a few twisted pair conductors comprising:

a high speed data interface (data transmission terminal 17) adapted to receive said DS3 data stream (the broadband stream 9 is PDH-data stream, hence is adapted to receive a DS# data stream) and inversely multiplex said high speed data stream into four parallel data streams (as carried by data transmission lines 3,4,5,6) that each comprise an approximately 11 megabits per second stream (Mbps) (a DS3 divided by four is approximately 11 megabits per second), a framer (chopper device 8), and a plurality of modems that modulate each corresponding stream of packets onto a twisted pair conductor (modems 3a, 4a, 5a, and 6a which can be based on VDSL technology, it is well known that VDSL can transmit at 13 Mbps), and a processor (central processing units 15a and 15b in Fig. 2) (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

However Peleg does not expressly that each packet generated by the framer has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

In the same field of endeavor Evans discloses that each packet generated by

the framer has a packet index number (frame sequence number) and a packet stream number (2-bit line identifier ) corresponding to its respective said parallel data stream (see Col. 5, l. 27-67).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet index number and a packet stream number as disclosed by Evans in the system of Peleg in order to identify an error condition and the sequence of a data stream that is taken from a high bandwidth line and split among low bandwidth links.

Nonetheless Peleg as modified by Evans does not specifically disclose that the processor is adapted to identify a loopback code in said high speed data stream, wherein said processor is further adapted to pass through a first received loopback code to another device, and to enter a loopback mode if an nth subsequent loopback code is received without an intervening loop down code.

The Applicant has disclosed in paragraph [0022] of specification that most existing test DS3 test equipment can easily send multiple copies of the loop commands without an intervening loop down command.

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the claimed feature in order to perform testing using the capabilities of existing test equipment.

Consider claims 28 Peleg discloses a plurality of modems that demodulate each a plurality of parallel signals received over said plurality of twisted pair conductors

(modems 3b, 4b, 5b, and 6b), a deframer (reconstructor 11 ), a high speed data interface ( demultiplexing device 2) adapted to receive said plurality of synchronized parallel data streams and to multiplex said plurality of synchronized parallel data streams into said high speed data stream, and a processor (central processing units 15a and 15b in Fig. 2) (see Fig. 2 and paragraphs 1, 11, 17, 20, 23, 38-41, 50 and 54).

However Peleg does not expressly that each packet has a packet index number and a packet stream number corresponding to its respective said parallel data stream.

In the same field of endeavor Evans discloses that each has a packet index number (frame sequence number) and a packet stream number (2-bit line identifier ) corresponding to its respective said parallel data stream (see Col. 5, l. 27-67).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet index number and a packet stream number as disclosed by Evans in the system of Peleg in order to identify an error condition and the sequence of a data stream that is taken from a high bandwidth line and split among low bandwidth links.

Nonetheless Peleg as modified by Evans does not specifically disclose that the processor is adapted to identify a loopback code in said high speed data stream, wherein said processor is further adapted to pass through a first received loopback code to another device, and to enter a loopback mode if an nth subsequent loopback code is received without an intervening loop down code.

The Applicant has disclosed in paragraph [0022] of specification that most existing test DS3 test equipment can easily send multiple copies of the loop commands

without an intervening loop down command.

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the claimed feature in order to perform testing using the capabilities of existing test equipment.

6. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable Peleg et al. ("Peleg", United States Patent Application Publication No.: US 2003/0107999 A1) in view of Evans (United States Patent No.: US 6,928,056 B2), and further in view of Wolf et al. ("Wolf", United States Patent Application Publication No.: US 2002/0080825 A1).

Consider claim 36 and as applied to claim 34 above, Peleg as modified by Evans does not specifically disclose that the stream identifier received from each of a plurality of the four streams transmitted on respective twisted pair conductors can be used to determine that a miswire condition exists between at least two of the twisted pair conductors.

In the same field of endeavor Wolf discloses using individual bits or bit sequences or identifications codes which can be used to determine wiring errors (paragraph [0043]).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use identification codes as disclosed by Wolf in the system of Peleg as modified by Evans in order to detect wiring errors.

***Allowable Subject Matter***

7. Claims 8-10, 12, 13, 16-24, and 30-33 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Slaughter et al. (Pub. No.: US 2002/0176139A1) discloses VDSL systems that can provide 13 Mbps in the range up to 4,000 feet.

9. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERMAN VIANA DI PRISCO whose telephone number is (571)270-1781. The examiner can normally be reached on Monday through Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/German Viana Di Prisco/  
Examiner, Art Unit 2617

/Rafael Pérez-Gutiérrez/  
Supervisory Patent Examiner, Art Unit 2617

May 8, 2009